ELECTRONIC DISTRIBUTION OF NAVAL NUCLEAR PROPULSION INFORMATION TO PROGRAM CUSTOMERS

Advanced Management Program

June 18 2002

FISSION VISION

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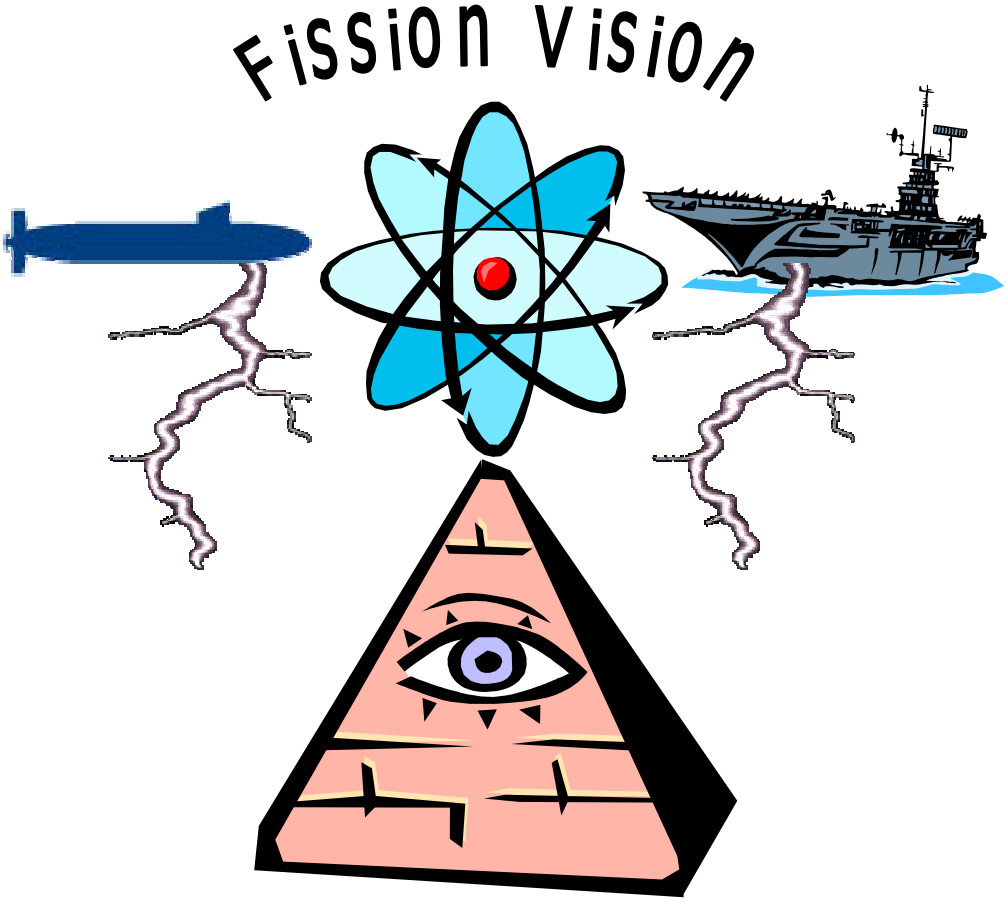
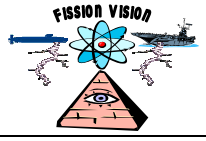




INTRODUCTION:
This paper proposes a two-part solution that facilitates the electronic exchange of Naval Nuclear Propulsion Information (NNPI) to and from both Fleet units and shore-based activities. For purposes of this discussion, the term NNPI is defined as information (both classified and unclassified) pertaining to the Naval Nuclear Propulsion Program.

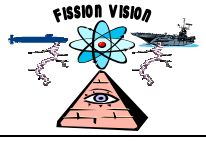
The first part of the solution leverages the Department of Defense (DoD) SECRET Internet Protocol Router Network (SIPRNET) as a communication link to the Fleet and the second leverages an existing Naval Nuclear Propulsion Program CONFIDENTIAL intranet as a common communication backbone among Program-related, shore-based activities.

Today, most NNPI data is handled in hard-copy format or on "soon-to-be" encrypted Compact Disk- Read Only Memory (CD-ROM). Naval Reactors (NR) Program information (e.g., Reactor Plant Publications, Component Technical Publications, Training Publications, Computer-assisted Maintenance Lessons, Ship Alterations, Advanced Plant Response Demonstrators, Reactor Plant General documents, etc.) is produced as a publication or CD-ROM and sent to the end users via standard parcel delivery services (e.g., USPS, FEDEX, etc.). From a process perspective, this practice is cumbersome and time consuming. Therefore, the Program is working to convert NNPI information into a secure electronic format that can be distributed to end-users. Providing NNPI to the Program end users in a secure electronic format has the potential to significantly enhance Fleet readiness, improve convenience to the customer, reduce costs currently associated with the production/distribution of information and improve the security of sensitive Program data.

The Navy has developed multiple networks (e.g. Non-secure Internet Router Protocol Network (NIPRNET) and Streamline Automated Logistics Transmission System (SALTS)) to provide unclassified electronic interfaces between ships, submarines and shore-based activities. Similarly, the SIPRNET, which is under the cognizance of Defense Information System Agency (DISA), has been developed to provide classified connectivity; however, to date, neither has been utilized for the transmission of NNPI.

The Program has developed a classified intranet to share classified NNPI between Program shore-based activities, nuclear capable shipyards and Type Commanders. However, data contained within the Program intranet is not formatted for efficient electronic distribution. Additionally, not all of the required electronic data is posted on the Program intranet. Therefore, shore-based users cannot uniformly access it.

The proposal is to establish the capability to use both the SIPRNET and the Program intranet for the transmission of NNPI to and from both Fleet and shore-based activities. Data exchanged electronically via the SIPRNET (verses paper, floppy, tape or compact disk) reduces delivery time from 7 days to 1 day (86% reduction) in getting the information to the reactor plant operators and nuclear supply departments. Numerous other savings will also be realized such as reducing the cost of printing and distributing CD and paper material, improved security and an overall



improvement in obtaining critical information and data. Similar benefits will be realized during the implementation of the Program intranet solution.

Finally, adoption of this proposal will permit the Program to capitalize on other developing Navy initiatives. An example is the NAVSEA-sponsored application that compares and automatically reconciles and updates shipboard databases by "pushing" the latest shore-based information.

ENVIRONMENT:

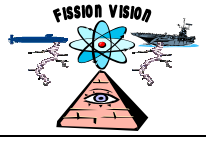
The Navy is leveraging current technology to implement electronic solutions that facilitate effective communications with Fleet units. These solutions, in many cases, are an outright replacement of traditional hard-copy paper transmissions, utilize 21st century web-based electronic systems and mimic technology used by today's computer literate sailor. Networks have been established to facilitate "real-time" data transmission.

While hard-copy classified information can be exchanged between ship and shore utilizing existing distribution systems, such as the US Postal Service, many electronic paths, although faster and more efficient, are not certified to transmit this sensitive data. The SIPRNET is one of the solutions available and certified to support sensitive data exchange. This network, which utilizes "need-to-know" (NTK) controls to ensure information access is limited to authorized users, provides a communication path for data that is classified up to and including SECRET.

Additionally, many traditional networks are constrained by a land-based infrastructure. Specifically, end-user connectivity relies upon hard-wired communications paths. The SIPRNET, however, can maintain connectivity utilizing ship-to-satellite communication paths, in addition to traditional landline (hardwire) paths, when Fleet units are deployed. This additional capability, while not the most optimum transmission path, does provide nearly continuous connectivity between all end-users utilizing this network for data exchange. Exchanges via satellite will be of limited nature due to baud rate constraints. Additionally, units must have direct line-of-sight access in order to capitalize on satellite functionality; therefore, submarine connectivity is not possible while the units are submerged.

PROPOSAL:

This paper proposes to use the SIPRNET and Program intranet infrastructures to allow ships, submarines and shore-based activities to connect to a server to exchange information (e.g., publications updates, allowance information, e-mail type documents, etc.) that is applicable to their activity. The team responsible for implementing this proposal should identify an e-mail equivalent solution for exchanging information via the SIPRNET. The use of WINZIP, an NMCI authorized software product, will be used to minimize file size issues such as bandwidth restrictions. Appendix A provides a graphical illustration of the proposed process. Appendix B details the initial hardware and software requirements as well as annual operating costs for this solution.



Additionally, applications should be developed that are similar to the NAVSEA-sponsored Technical Data Knowledge Management – Integrated Data Environment initiative, that synchronizes Fleet and shore-based libraries. These applications will compare the shore-based libraries and current ship configuration against the shipboard libraries and configuration and perform automatic updates to the shipboard database. This will eliminate the human element by "pushing" the critical technical information based on the latest ship configuration.

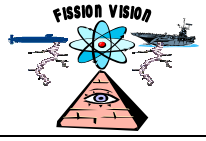
BENEFITS:
Once implemented, the proposal will offer many benefits to the NR Program customers (both Fleet and shore-based activities). Specific benefits include:

Reduces Costs – Customers will access NNPI from an approved SIPRNET or Program intranet server, reducing mailing costs. Although mailing costs have been $150K in each of the past three years, the proposal is estimated to reduce mailing costs by $50K per year. Total elimination of mailing costs is not possible in that a minimum level of hard-copy material will still be required.

The "printing-on-demand" solution, recommended below, would eliminate $50K per year in hard-copy publication production, which is currently produced within the Defense Automated Printing Service (DAPS). In addition to the above publications, Bettis Atomic Power Laboratory, an NR prime contractor, has the majority of its publications printed through a DAPS subcontractor, Braceland Brothers. This cost is $900K per year. The proposal will eliminate 40% ($360K) of this cost. Offsetting costs of $180K will still be required to print foldout charts and diagrams on Tyvec paper. Another $200K will be required to support a one-time procurement of two "printing-on-demand" printers. This proposal will also require $100K per year to purchase printing supplies and printer maintenance. The existing work force should be able to support this new function utilizing the reduced workload associated with issuing fewer paper publications. An ancillary savings will be realized within the customer's activity in that labor costs will not be incurred to update as many paper publications with revisions.

Costs associated with the mailing of / labor to install CD-ROM based publications and publication revisions to shipboard LAN servers will be eliminated. NAVSEA directed encryption of CD-ROMs using a NAVSEA-approved encryption method. Bechtel Plant Machinery Inc. (BPMI), a NAVSEA prime contractor, studied encryption and determined that "Encryption Plus CD-ROM" is the strongest commercially available encryption package. The product is licensed based upon the number of CD-ROMs encrypted. The Program estimates that encryption software costs will be about $120K per year, based upon a required production of 62,000 CD-ROMs per year. This proposal eliminates this cost ($120K) in its entirety.

This proposal capitalizes on current E-Commerce initiatives by "Re-informating" NNPI by virtualizing physical data and warehousing knowledge, and "De-massifies" NNPI by shifting from a physical paper inventory to an inventory of bits and bytes. This transformation lowers order-processing costs and expedites Supply Chain delivery. The solution makes available paper versions of NNPI as needed; utilizing "printing-on-demand" distributed products. This reduces



storage, distribution, shipping and handling costs. NR requires that Fleet customers retain a minimal number of paper copies of each publication. Requirements for paper publications can be printed as needed, eliminating costs incurred by printing "extra" copies of each publication, as is today's practice. This "printing-on demand" solution reduces warehouse storage space requirements.

The proposal is to stand up a SIPRNET server at the DISA activity in Mechanicsburg, PA. DISA has space available that is approved for housing SIPRNET servers. By placing the server in Mechanicsburg, SIPRNET connectivity costs can be shared with other Mechanicsburg customers (NALC and NAVSEA). Connectivity costs will be $10K per year if the server is located in Mechanicsburg, versus $30K if the server is placed in a location where SIPRNET connectivity is not already established.

Increases Security – The proposal eliminates a significant amount of classified NNPI being distributed via hardcopy through the US Postal Service; therein, eliminating the possibility of lost or misplaced material. Delivering the information via SIPRNET or Program intranet servers restricts visibility and enforces strict NTK access controls. In addition, this recommendation reduces the concerns associated with placing the information on CD-ROM, eliminates the need to encrypt CD-ROMs, and precludes the need to develop CD-ROM password applications. The proposal also eliminates the need for Fleet Post Office handling of this large amount of sensitive data.

Enhances Timeliness – The proposal increases convenience to the customer. NNPI can be downloaded at the customers' convenience, when the customer is ready to receive the information. In addition, for Fleet units, downloading the required data electronically greatly reduces the requirement to have the publications held by a third party (e.g., Type Commander, Tender, etc.) until the ship returns to port, eliminating custodial control issues. This recommendation also eliminates the production delays associated with sending electronically authored files to DAPS for printing of paper publications or production of CD-ROMs. The proposal reduces an average of six days from the existing supply chain management distribution system.

Reduces Storage Requirements– Another benefit is the significant reduction in the number of paper copy publications. Fleet customers will maintain only one paper copy of required reactor plant technical and operating publications. This will free up limited resource space for other purposes. The USS Jimmy Carter received 965 pounds of paper propulsion plant technical publications, requiring 50 cubic feet of storage space. The proposal reduces by 75 the number duplicative publication copies (from 193 to 118), representing a reduction of 39% in weight and storage space (377 pounds and 20 cubic feet). The USS Ronald Reagan was recently outfitted with 965 technical publications, weighing 6,160 pounds and requiring 252 cubic feet of storage space. The proposal reduces the number of carrier paper publications to 482, a reduction of 50% in weight and storage space (3,080 pounds and 242 cubic feet).

Improves Safety and Data Accuracy – The proposal increases safety of the reactor plant operation by assuring that the appropriate version of each technical publication and various logistics reports is contained on the shipboard LAN server. This eliminates concern as to whether crewmembers inserted all revisions and advanced change notices into each paper copy publication. This solution also eliminates inundating Fleet customers with new CDs every time a revision occurs. At the customer's convenience, the ship can download the version applicable to them and be assured that all updates are loaded. This reduces the chance of a technician working with an outdated publication.

Leverages Existing Navy Technology – The proposal supports the efforts of the federal government with respect to approved technologies. This recommendation proposes the use of DoD standard IETM software technologies, allowing the sailor to read the information using either a standard WEB Browser or Adobe Acrobat Reader. This proposal also leverages electronic communications, and eliminates mailing of CD-ROM and paper copies of the same information. This proposal makes use of the DoD's existing Secret Internet Protocol Router Network (SIPRNET). New hardware technologies do not need to be developed and deployed to allow electronic transmission of the material to the Fleet. Migration of information from paper to electronic format also allows today's sailor to use the information in electronic format, an environment in which today's sailor is more comfortable.

COSTS:

This proposal offers the opportunity to significantly reduce the Supply Chain Management costs associated with distributing NNPI to the Fleet customer. Appendix B identifies estimated cost savings associated with this recommendation.

IMPLEMENTATION STRATEGY:

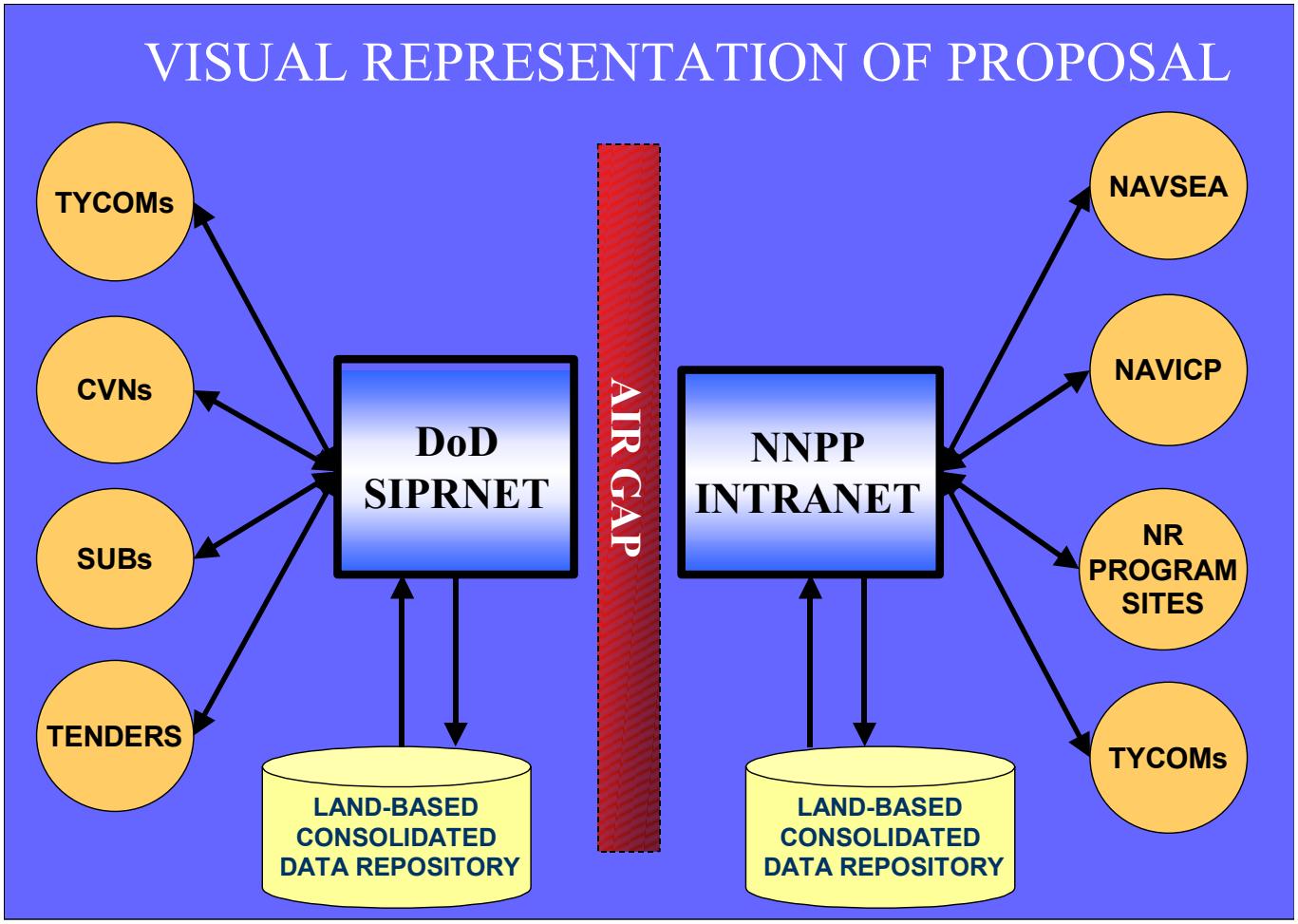
The proposed implementation includes the following:

- Obtain approval of the proposal.
- Forward the approved proposal to Commander, Naval Inventory Control Point recommending implementation.
- The team will provide follow-on support to Commander, Naval Inventory Control Point as needed to ensure proper implementation

RECOMMENDATION:
Endorse the proposal for the automated distribution method of Naval Nuclear Propulsion Information. The approved proposal should be forwarded to Commander, Naval Inventory Control Point recommending implementation.

REFERENCE:
NAVSEA letter Serial 08Y/02-02984 dated 14 June 2002

Appendix A


VISUAL REPRESENTATION OF PROPOSAL
TYCOMs
CVNs
SUBs
TENDERS
DoD SIPRNET
AIR GAP
NNPP INTRANET
NAVSEA
NAVICP
NR PROGRAM SITES
TYCOMs
LAND-BASED CONSOLIDATED DATA REPOSITORY
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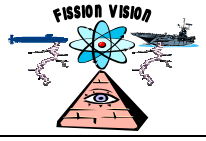

Appendix B

Cost Savings From Project

Cost Reductions/Year:		
Mailing Costs	$50,000	
Printing Costs	$410,000	
CD-ROM Encryption	$120,000	
Server Connection Charge	$20,000	
Total Cost Savings/Yr:		$600,000
Cost Increases/Year:		
Printer Supplies / Support	$100,000	
Server Administrator	$70,000	
Supply Technician	$45,000	
SIPRNET Connectivity	$10,000	
Total Cost Increases/Yr:		$225,000
Net Cost Savings/Year:		**$375,000**
One Time Startup Costs:		
SIPRNET Server	$45,000	
Print-on-Demand Printers	$200,000	
Total Startup Cost:		$245,000
Break Even Point	**9.36 months**	